INDEX.

PAGE

ABORIGINES of Queensland . . . 269
Advance of biology in 1896 . . . 867
African lake faunas 526
Agassiz, Louis 147
Agricultural botany 883
Alaska, zoological knowledge of Eskimo 719
Algæ, de Toni's sylloge algarum . 961
Algæ, preservation of 532
Allen, J. A. Pocket mouse in confinement 583
Amphioxus, eyes of 447
Angiosperms, primitive 212
Annelids of Pacific Coast . . . 358
Ants, psychical qualities of . . . 439
Apogamy in ferns 532
Aquarium plants 962
Arbacia, case of variation in . . . 259
Archesporium and nucleus of Bignonia 102
Asarum 369
Ascomycetes, have all a basidiomycetous stage 98
Astasia, development of 287
Atkinson, G. F. Mycelia and fungi from a coal mine 98
Azores, botanical observations in . 128

BACILLUS, development of . . . 287
Bacteria, sulphur 456
Bangs, O. Mammals of Labrador 489
Beal, W. J. Some unique examples of dispersion of seeds and fruits 859
Bees, activity of a hive of . . . 90
Bees, psychical qualities of . . . 439
Bessey, C. A. and E. A. Crickets as thermometers 263
Bessey, C. E. Foot-hill vegetation of Nebraska 111
Beyer, Geo. E. Life-histories of certain snakes 17
Biological stations in America . . 391
Biology, the advance of in 1896 . 867
Birds of Indiana 880
Birds of the Galapagos Islands . 386
Blepharoplasts and centrosomes . 100
Boston basin, rocks of 534
Botanical Notes 212, 294, 371, 884, 962
Botany at Geneva 61
Brassempouy, finds at in 1896 . . 586

PAGE

Brown rot of cabbage 99
Brown rot of Crucifera 290
Bryozoa, development of 205
Budding in Hymenoptera . . . 526
Bumpus, H. C. Identification of fish artificially hatched 407
Bunting, M. Cork tissue in roots of Rosaceæ 109
Bureau of ethnology report . . . 52
Burial places, prehistoric, in Maine 877
Burt, E. A. Have all Ascomycetes a basidiomycetous stage . . 98

CABBAGE, brown rot of 99
Cactaceæ 107
California, eruptive rocks . . . 136
California, rocks of . . . 614, 967
Campbell, D. H. Botanical aspects of Jamaica 34
Campbell, D. H. Bower's morphology of the Marattiaceæ . . 597
Campbell, D. H. Goebel's Organographie der Pflanzen 606
Canadian botany 461
Case, E. C. Significance of changes in the temporal region of primitive Reptilia 69
Caulerpa, monograph of the genus 959
Cell, centrosome, and blepharoplast 100
Cell lineage 125
Cell or corpuscle 131
Cell, plant, new organs in . . . 102
Centrosomes and blepharoplasts . 100
Centrosomes, origin of cleavage . 280
Cetacea, stomach of 449
Chalicodoma, development . . . 794
Cheese, ripening of 457
Cheirostrobus 463
Chelonian carapace and plastron, morphology of 929
Chemical analysis of the plankton, 952
Chemical changes in plant stimulation 354
Chilopods, development 881
Chriacidæ and primates 261
Claspers of elasmobranchs . . . 591
Cleavage centrosomes, origin of . 280
Clinohedrits 611
Cockerell, T. D. A. Development of Mantis 513

PAGE
Color vision 833
Comstock, J. H., and Needham, J. G. The wings of insects 42, 81, 231, 335, 413, 561, 768, 903
Concilium bibliographicum . 876, 925
Conopholis 108
Cork tissue in Rosaciæ 109
Crickets as thermometers . . . 263
Crosses, dissimilar reciprocal . . 355
Crucifera, brown rot of 290
Cruciferæ, floral plan of 363
Crustacea of the Northrop collection 958
Cryptogams of the River Elbe . . 962
Crystal angles 378
Cuba, flora of 369
Cutler, Manasseh, sketch 75
Cyclostome, new 362
Cyclostome pronephros 526

DAISY, variation in 509
Date, albumen of 292
Davenport, C. B. The advance of biology in 1896 867
Davenport, G. C. Agassiz's work on the embryology of the turtle 187
Dermochelys, systematic position . 929
Determination of sex in plants . . 124
De Toni's sylloge 961
Development of chilopods . . . 881
Diamond, genesis of 610
Dichodon, skull of 117
Digestion in pitcher plants . . . 211
Digestion of albumen of date . . 292
Dinichthyds, osteology of . . . 747
Dispersion of seeds and fruits . . 859
Drosera, buds on leaves of . . . 114
Duggar, B. M. Archesporium and nucleus of Bignonia . . . 102

EARLE, C. The Chriacidæ and primates 261
—— Notes on fossil mammals of Europe 115
Earth worm, regeneration of head 360
Eastman, C. R. Agassiz's work on fossil fishes 177
—— Dentition of Ptyctodonts, 473, 545
—— New points in dinichthyd osteology 747
Editor-in-chief 949
Editorials:
The aim of the *American Naturalist* 49
Artificial protoplasm . . . 949
Card bibliographies 518
Concilium bibliographicum . 876
Diagnostic characters of birds 430
Editor-in-chief 949
An editor found 949
Fiftieth anniversary of the American Association . . 515

Editorials: PAGE
The fur-seal problem . . . 199
Georg Baur 717
Marine biological station for Canada 783
Marvellous technique . . . 120
Methods in systematic work . 519
National scientific appointments 266
Need of an American "Leuniss" 585
A new biological journal . . 118
New York State College of Forestry 875
Plea for systematic zoology . 350
A semi-centennial in American science 197
Scientific names 119
Society for Plant Morphology 121
Uniform system of craniometry 266
A war of extermination . . 429
Zoology in Japan 430
Elasmobranch claspers 591
Epiphyllous flowers 370
Eskimo, graphic art of 353
Etiolated leaves 292
Europe, fresh-water fauna of, 789, 793
Europe, races of 203
Evolution, a half-century of . . . 623
Eyes of Amphioxus 447

FARLOW, W. G. Conception of species as affected by investigations on fungi 675
Fauna, fresh-water, of Ceylon . . 880
Fauna of France 594, 957
Faunas of Europe and America contrasted 525
Ferns of Nicaragua 210
Field, G. W. Methods in planktonology 735
Field, H. H. Work of the Concilium Bibliographicum . . . 925
Filose activity in metazoan eggs . 878
Fins of fishes 524
Fish, identification of artificially hatched 407
Fish stomach 590
Fishes, mating of viviparous . . 305
Fishes new to New England . . 958
Fishes of New York 207
Fishes of the Canary Islands . . 881
Fishes, paired fins of 524
Flies of New Mexico 448
Flora of Pleistocene 296
Florida, mammals of 433
Florida, vegetation of 602
Fluid for preserving algæ . . . 532
Forestry, New York State College of 875
Fouilles à Brassempouy 586

PAGE

Frog biography 436
Fruits, ripening of 207
Funafutti, ethnology of 586
Fungi, edible 805
Fungi from a coal mine 98
Fungi of Netherlands 462
Fusion of pupæ 879

GALAPAGOS, birds of 386
Ganoids, classification of . . . 341
Ganong, studies of Cactaceæ . . 107
Garnet, a new 613
Gelsemium, phloëm in 110
Generic characters 218
Gentian, pollination of 265
Geological changes and evolution 623
Germination under physical conditions 106
Gerould, J. H. A viviparous Holothurian 272
Gneiss of Anglesey, England . . 534
Gneisses, Adirondack 967
Granite, nodular 614
Graptolites 1
Grasses, Lodicules of 108
Gratacap, L. P. Relation of James Hall to American geology . . 891
Grave, C. Psychical qualities of ants and bees 439
Grout, A. J. Adventitious buds in Drosera 114
Growth, rôle of water in 122

HAIR, distribution of 447
Hall, James, his relation to American geology 891
Hardness of minerals 377
Harper, R. A. Spore formation in some Sporangia 101
Harshberger, J. W. Water storage and conduction in Senecio . 108
Hawaiian Islands, lavas and soils . 537
Hawks, alternation of sex in a brood of 567
Hay, O. P. Classification of amioid and lepidosteoid fishes . 341
—— On Protostega, the systematic position of Dermochelys and the morphology of the chelonian carapace and plastron 929
Head, segmentation of 587
Helix nemoralis, variation of . . 913
Heredity and hybridization . . . 103
Heredity, variation versus . . . 821
Holothurian, viviparous 272
Horse, trotting 55
Hovey, E. O. Notes on some European museums 697
Howe, J. L. Variation in the shell of Helix nemoralis in the Lexington, Va., colony 913

PAGE

Humphrey, J. E. Manasseh Cutler 75
Hydrocyanic acid, animals and plants 104
Hymenoptera, budding in . . . 526

IGNEOUS rocks, classification of . 465
Indian ceremonials 432
Indians, Kwakiutl 352
Infusoria, classification of . . . 425
Insect wings, 42, 81, 231, 335, 453, 561, 768, 903
Iron woods, East Indian 884
Irritability in climbing plants . . 530
Italy, basic rocks of 811

JAMAICA, botanical aspects of . . 34
Johns Hopkins, zoology at . . . 128
Jordan, D. S. Agassiz on recent fishes 173

KENYON, F. C. Activity of hive of bees 90
Kofoid, C. A. Fresh-water biological stations of America . . 391
—— Recent faunistic work in Europe 789, 793
Kramer's disease of sugar beets . 99
Kwakiutl Indians 352

Labrador, mammals of 489
Lakes classified by temperature . 25
Lefevre, G. Origin of cleavage centrosomes 280
Leguminoseæ, root tubercles of . 365
Lemnacea of North America . . 59
Lepidophloios 464
Lepidosiren 206
Leucites from Montana 466
Life zones and crop zones . . . 884
Louisiana, mounds in 586
Lower California, botany of . . 601
Lucas, F. C. Variations in the daisy 509

MACFARLANE, J. M. A Mycorhiza in the roots of Philesia . . . 97
Macrophthalmia 362
Mammals of Florida 433
Mammals of Labrador 489
Mammalia, origin of 309
Mantis, development of 513
Marattiaceæ, morphology of . . 597
Maya territory, human remains from 951
Mendota, plankton of 282
Metazoan eggs, filose activity . . 878
Meteorites 815
Mexico, eruptive rocks of . . . 534
Millepora 527
Mineralogy, Dana's text-book . . 965
Minerals, catalogue of 379

PAGE

Minerals, etching and symmetry of 611
Minerals, hardness of 377
Molgula, development of 126
Mounds in Louisiana 586
Murdock, J. Animals known to the Eskimos of Alaska . . . 719
Museums of Europe, notes on . . 697
Mushrooms, literature upon . . . 600
Mycorhiza in the roots of Philesia 97
Mydaidæ of New Mexico 448

NATURAL Science 949
Nebraska, vegetation of foot-hills . 111
Nerve cells, finer structure of . . 361
Nerve terminology 590
Netherlands, fungi of 462
New Mexico, flies of 448
New York State College of Forestry 875
Nicaragua, ferns of 210
Nickerson, W. S. Morphology of Trematodes 954
Nomenclature in horticulture . . 962
Noxious animals, what are . . . 571
Nutting, C. C. Sarcostyles of Plumularidæ 223
Nymphæas, new hardy 132

ODONTOID process 590
Ophidia, life-histories of 17
Osborn, H. F. Origin of the Mammalia 309
Osborn, H. L. Variation in Arbacia 259

PACKARD, a half-century of evolution with reference to the effects of geological changes 623
—— Philosophical views of Agassiz 159
Palæospondylus 527
Palæozoic of Poland 298
Pammel, L. H. Brown rot of Crucifera 290
—— Morphology and development of Astasia and Bacillus . 287
Parasitology, a new journal of . . 800
Patten, W. A basis for a theory of color vision 833
Peirce, G. J. Living plants and their properties 452
—— Pfeffer's Pflanzenphysiologie 450
Phloëm in Gelsemium 110
Phytoplankton, studies on . . . 961
Pieters, A. J. Alternating dryness and moisture and gemmation 106
Pines, timber 293
Pitcher plants, digestion in . . . 211
Plankton, chemical analysis of . . 952
Plankton methods 735

PAGE

Plankton methods in Europe 789, 793
Plankton of Lake Mendota . . . 282
Plankton of Puget Sound . . . 957
Plankton studies 125
Pleistocene flora 296
Plumularidæ, sarcostyles of . . . 223
Pocket mouse in confinement . . 583
Poland, palæozoics of 298
Pollination of Gentian 265
Polyzoa, development of 205
Porphyries of Lake Champlain . 534
Potamogeton, embryo'ogy of . . 109
Pronephros of cyclostomes . . . 526
Proprietary rights in science . . 133
Protoplasm, artificial 949
Protoplasm, studies on 271
Protostega 929
Psychical qualities of ants and bees 439
Ptyctodonts 473, 545
Puccinia, variation in 779
Pupæ, fusion of 878
Pycnogonids, systematic position . 958

QUEENSLAND, Aborigines of . . 269

RACES of Europe 203
Ranunculus, life-history of . . . 292
Regeneration in tubularians . . . 123
Regeneration of earthworm's head 360
Regressive evolution 432
Regulation in growth of organisms 123
Reptilia, skull of primitive . . . 69
Reviews:
Acloque's Faune de France 594, 957
Allgemeine Erdkunde . . . 62
Andrews's The Living Substance 271
Annuaire du Jardin Botanique de Genève 61
Archives de Parasitologie . . 800
Arthur's Vegetable Physiology 292
Bailey's Garden Making . . . 454
Bailey's Lessons with Plants . 284
Birge's Plankton of Mendota 282
Britton and Brown's Flora . 802
Bureau of Ethnology, 16th Report 52
Butler's Birds of Indiana . . 880
Carrière's Development of the Wall-Bee 794
Clark's Laboratory Manual of Botany 291
Clasen's Rabbit Anatomy . . 523
Combs's Cuban Plants . . . 369
Cope's Lectures on Vertebrates 591
Credner's Elemente der Geologie 62
Crick's Fossil Cephalopods in the British Museum . . . 811
Dana's Text-Book of Geology 375

Reviews: PAGE
Dana's Text-Book of Mineralogy 965
Detmer and Moor's Plant Physiology 804
De Toni's Sylloge Algarum . 961
Miss Eastwood's Studies . . 130
Fairhurst's Organic Evolution Considered 878
Fernald's Pterophoridæ . . 596
Frank's Agricultural Botany . 883
Fuch's Determinative Mineralogy 376
Goebel's Organographie der Pflanzen 606
Handlirsch's Phymatidæ . . 595
Hann's Klimatologie . . . 62
Harris's Australasian Tertiary Mollusca 134
Heller's Check-List of Plants 459
Henry's Feeds and Feeding . 355
History of the Smithsonian Institution 200
Hooker's Flora of British India 130
Indiana Botany 211
Jayne's Skeleton of the Cat . 520
Lange's Handbook of Nature Study 785
Lapparent's Leçons de Geographie Physique 62
Lindgren's Eruptive Rocks of California 136
Low's Mammals of Labrador 489
Mönkemeyer's Sumpf- und Wasserpflanzen 962
Minnesota Botanical Studies . 805
Missouri Botanical Garden Report 528
Oxford Herbarium 61
Packard's Text-Book of Entomology 592
Parker and Haswell's Zoology 787
Pfeffer's Pflanzenphysiologie . 450
Pharmaceutical Archives . . 210
Pittonia 130
Porter's Translation of the "Bonn" Botany 604
Proceedings of the Indiana Academy of Science . . . 202
Romanes's Darwin and after Darwin. III 272
Schorler's Vegetation der Elbe 962
Scudder's Melanopli 595
Shimek's Ferns of Nicaragua 210
Shufeldt's Chapters on Natural History 278
Suess's La Face de la Terre . 63
Tarr's Physical Geography . 63
Thompson's Lemoraceæ . . 59
Urbina's Catalogue of Mexican Plants 605

Reviews: PAGE
Walker's Distribution of the Unionidæ in Michigan . . 956
Weber-Van Bosse's Monographie des Caulerpes . . . 959
Weed's Books on Insects 58, 59
Wisconsin Geological and Natural History Survey . . 883
Wocke's Alpen-Pflanzen . . 962
Rhoads, S. N. "Noxious" or "beneficial"? false premises in zoology 571
Rhodolite, a new garnet 613
Ripening of cheese 457
Ripening of fleshy fruits 209
Rockery plants 962
Rocks associated with iron ores in Switzerland 812
Rocks, basic, in Italy 811
Rocks, classification of igneous, 465, 613
Rocks, eruptive of California . . 136
Rocks, nomenclature of contact . 814
Rocks of Boston basin 534
Rocks of California 614, 967
Rocks of Castle mountain, Montana 137
Root tubercles of Leguminoseæ . 365
Rowlee, W. W. Lodicules of grasses 108
Ruedemann, R. Studies of graptolites 1
Russell, F. Fouilles à Brassempouy 586
—— Ethnology of Funafutti . . 587
—— Mounds of Louisiana . . . 587
—— Races of Europe 203
—— The import of the totem . . 54

SALPA, anatomy of 524
Sargent, F. L. Lange's handbook of nature study 785
Scale insects, food plants of . . 293
Schists of Switzerland 813
Schiveley, A. Fruit production in Amphicarpæa 109
Scientific news, 64, 140, 214, 299, 380, 469, 540, 617, 817, 886, 969
Sea otter 356
Seedlings, variation in 952
Segmentation of vertebrate head . 587
Septate leaves of dioctyledons . . 132
Sex, determination of in plants . 124
Shufeldt, R. W. Alternation of sex in a brood of sparrowhawks 567
Simmondsia 529
Skull of reptiles 69
Skulls of Hawaiian Islanders . . 431
Smith, E. F. Bacterial brown rot of cabbages 99
—— Bailey's lessons with plants . 284
—— First meeting of the Society of Plant Morphology and Physiology 96

PAGE

Smith, E. F. Kramer's disease of sugar beets 99
—— Ripening of cheese 457
—— Root tubercles of Leguminosæ 365
—— Sulphur bacteria 456
Snakes, life-histories of 17
Society for plant morphology . . 96
Sonoran flora, lower 884
Special creation 878
Species, conception of 675
Spencerites 463
Spore formation in some Sporangia 101
Squawroot 108
Sterki, V. Classification of Ciliate Infusoria 425
Stimulation of plants and chemical changes 354
Stomach movements 524
Stomach of salmon 590
Sugar beets, disease of 99
Sugar cane 211
Sulphur bacteria 456
Sunstroke and bacteria 533
Swingle, W. T. Heredity, origin of species, and hybridization . . 103
—— Two new organs of the plant cell 102
Swiss schists 813
Switzerland rocks associated with iron ores 812

TAPIROIDS, fossil of France . . . 115
Temporal region of reptilian skull . 69
Terminology of brain 590
Thompson, C. Phloëm in gelsemium 110
Totem, import of 54
Trematodes, morphology of . . 954
Trotting horse 55
Tubercles on roots of Leguminoseæ 365
Tumors and germ layers 798

UNIONIDÆ of Michigan 956

PAGE

VARIATION in ambulacral system of Arbacia 259
Variation in Puccinia 779
Variation in seedlings 952
Variation in the daisy 509
Variation of Helix nemoralis . . 713
Variation versus heredity . . . 821
Vertebrate head, segmentation of 587
Volcanics of Michigan 952

WARD, H. B. Archives de Parasitologie 800
Warren, J. A. Variations in the teleutospores of Puccinia . . . 779
Water in growth 122
Weathering of rocks 535
Webb, R. J. Pollination of gentian 265
Webber, H. J. Are blepharoplasts distinct from centrosomes . . 100
Whales, stomach of 449
Wheeler, W. A. Development of the wall-bee (Chalicodoma) . . 794
Whipple, G. C. Classification of lakes according to temperature . 25
Wiegand, K. M. Embryology of Potamogeton 109
Wilder, B. G. Agassiz at Penikese 189
Williams, H. S. Variation versus heredity 821
Wilson, L. L. American squawroot (Conopholis) 108
Wings of insects, 42, 81, 231, 335, 413, 561, 768, 903
Wisconsin, forests of 603
Wisconsin survey 883
Wolpi, ceremony at winter solstice 432
Woods, A. T. Variable reaction of plants and animals to hydrocyanic acid 104
Wright, A. A. Agassiz and the ice age 164

YUCATAN, flora of 461

ZOOLOGY at Johns Hopkins . . 128